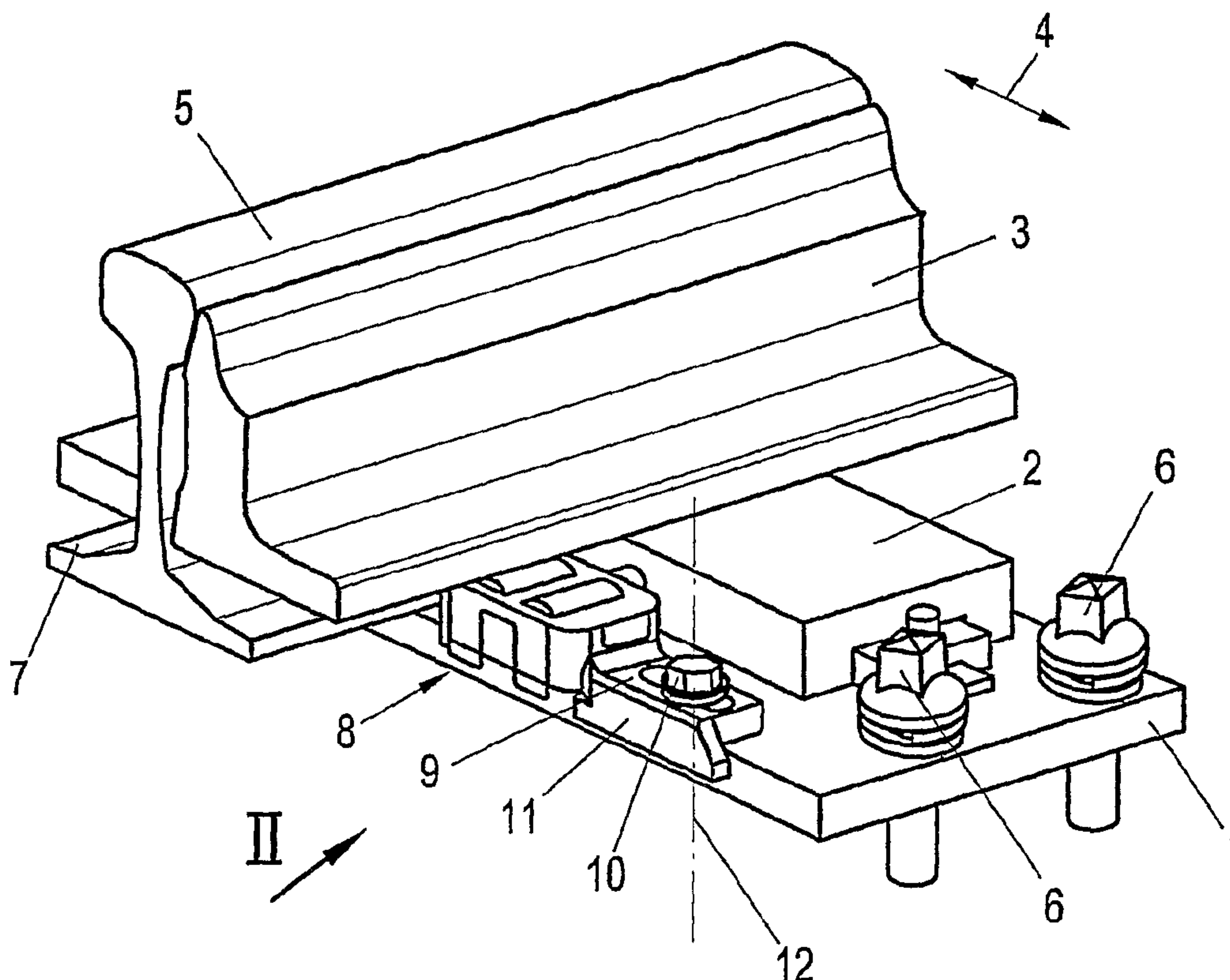




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(54) Title: DEVICE FOR RAISING A SWITCH RAIL



(57) Abrégé/Abstract:

In a device for raising a switch rail (3) of a set of points when the switch rail (3) is switched over, having a roller mount (8) for rollers or drums (14) which is arranged laterally outside a sliding chair within the surface of a sleeper (18) facing the rails (3, 5), the roller block (8) is connected to a flange (9) which supports a stop bar (11), for securement to the rib plate (1), and the stop bar (11) bears laterally against an edge of the rib plate (1) in the position in which said stop bar (11) is connected to the rib plate (1).

## Abstract:

In a device for lifting a tongue rail (3) of a switch during switching of the tongue rail (3), including a roller holder (8) for rollers or rolls (14), which is arranged laterally outside a slide chair within the surface of a sleeper (18) facing the rails (3,5), the roller holder (8) is connected with a flange (9) carrying a stop bar (11) for fixation to the rib plate (1), and the stop bar (11) laterally bears against an edge of the rib plate (1) in the position connected with the rib plate (1). (Fig. 1)

Device for Raising a Switch Rail

The invention relates to a device for lifting a tongue rail of a switch during switching of the tongue rail, including a roller holder for rollers or rolls, which is arranged laterally outside a slide chair within the surface of a sleeper facing the rails.

Devices of the initially defined kind are, for instance, known from AT 001448 U1. In that known device, the rollers are arranged in a roller support which is in turn fixed to the rail foot between adjacent sleepers. It is true that the subsequent attachment of such roller supports is extremely simple. Yet, maintenance operations and, in particular, tamping operations are impeded by the arrangement of the rollers between adjacent sleepers. In such cases, dismounting and remounting as well as readjusting operations are necessary.

From EP 851063 A1, a roller device of the initially mentioned type is known, in which the rollers are fixed to a sleeper along with a roller support by a plurality of screws. With an arrangement of that type, adjustment relative to the sliding surfaces of slide chairs is required such that the respectively correct height position has to be individually fixed during each mounting by the aid of intermediate plates or washers.

Also in the configuration known from DE 10116041 A1, the rollers are arranged in a manner that the space between adjacent sleepers is kept free for maintenance operations on the track bed. There, the fixation is, however, effected to a separate support, which is itself, in turn, fixed to the stock

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rail so as to again involve high mounting and adjustment expenditures.

From DE 102004004784 A1, an integrated roller device has become known, which is arranged in a specially designed rib plate, wherein also the sliding surface of a slide chair is additionally defined on the rib plate laterally of the roller device. The roller device in that case can each be accordingly fixed to a plurality of bores of the rib plate in an oriented manner by the aid of a plurality of screws in order to enable appropriate adjustment. For the correct position, at least two screws and two oblong holes are, however, provided to ensure that the tongue rail will no longer rest on the rollers in its closed position. A subsequent installation of such roller devices calls for the complete exchange of the rib plate and cumbersome adaptation work.

The invention aims to provide a simple roller device whose installation is readily feasible without cumbersome adaptation work by a single screw connection in the space available beside the slide chair and within the width of a sleeper, without lateral parts projecting into the region between adjacent sleepers.

To solve this object, the device according to the invention of the initially defined kind essentially consists in that the roller holder is connected with a flange carrying a stop bar for fixation to the rib plate, and that the stop bar laterally bears against an edge of the rib plate in the position connected with the rib plate. Due to the fact that a roller holder is connected with a flange carrying a stop bar and intended for fixing a rib plate, an appropriate oblong hole can be provided in such a flange so as to enable an

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appropriate fixation by a single screw, which is immersed in a respective bore of the rib plate optionally made subsequently. However, since such a screw connection using but a single screw would not safely prevent the rollers from laterally pivoting about the axis formed by the screw, the configuration, with a view to providing the required stability and securement of the selected position, is devised such that the flange carries a stop bar, which comes to bear against the side edge of the rib plate after screwing down. This stop bar, along with the screw fixation, will thus secure the flange, and hence the roller holder, against pivoting about the screw axis, so that a single screw enables not only the adjustment of the respective position relative to the stock rail but, at the same time, also provides a securement against rotation or pivoting, and hence a positional securement. The device according to the invention is also suitable for subsequent installation, since it will merely do to make a single screw hole in the rib plate at a suitable distance and provide the same with a thread in order to ensure the respective fixation in the correct position. In special cases, it may merely be necessary in the vertical direction to adapt the lower edge of the roller holder accordingly in order to ensure close abutment of the roller holder.

In a particularly simple manner, the roller holder is designed such that the roller holder comprises two cheeks extending transversely to the longitudinal direction of the rail and intended for abutment on the rib plate to accommodate the axes or shafts of the rollers or rolls, which are connected with the flange. A particularly stable construction will be achieved, if the configuration is devised such that the roller holder is designed as an upwardly open frame or box resting on the rib plate. Such a box can be produced as a casting and, in

any event, exhibits the appropriate torsional strength even if the fixation via a flange is only effected in one point of the rib plate, whereby pivoting about the axis of fixation will, at the same time, be impeded or prevented by the stop bar. This casting may be particularly low-structured, since the attachment to the flange is effected outside the frame or box of the roller holder such that the roller holder can to the greatest extent possible rest on the surface of the rib plate, to which also the sliding parts of the slide chair are fixed in a conventional manner. Due to this low construction, no special adaptations relative to conventional rib plates are required.

In order to safeguard, in such a construction, that the penetration of contaminates will not affect its functioning, and to ensure the removal of such contaminates from the frame or box, the configuration is advantageously devised such that the cheeks have recesses on their lower edges facing the rib plate.

The correct adjustment relative to the stock rail, or the position in which the tongue rail is to bear against the stock rail, will be safeguarded in a particularly simple manner in that the flange has an oblong hole for receiving a locking bolt or a screw. Together with the stop bar bearing against the side edge of the rib plate and constituting an anti-rotation protection, this results in the compact-structured roller device being very easily mountable to the rib plate in the freely available space, since only one fixing bore is required for the positional fixation.

In order to ensure the anti-rotation securement in small constructions even relative to large rotational forces, the

configuration is advantageously devised such that the oblong hole is shorter than the length of the stop bar, measured in the direction transverse to the longitudinal direction of the rail. The stop bar is thus substantially longer than the oblong hole and able to safely take up even high rotational forces without enabling any twisting or pivoting.

In order to avoid the penetration of dirt or the like, it is feasible in a particularly simple manner to clamp a cover over the casting so as to leave free only the upper subregions of the roller bodies contacting the tongue rail. In this respect, the configuration is preferably devised such that a slip-on cover element overlapping the cheeks, the frame or the box and including openings for the rollers or rolls is provided.

For optionally required adaptations in different heights of the slide chair, it will, as a rule, suffice to appropriately work on the two bearing surfaces of the roller holder in order to ensure a close abutment.

In a further preferred embodiment, a roller device comprising a spring-mounted roller is provided for the rear adjustment region of the tongue rail, in which only a slight transverse movement of the tongue occurs. To this end, a spring is loosely inserted into the roller device during mounting and a link comprising a premounted roller is installed. The spring is dimensioned in such a manner as to ensure the safe spring deflection during the passage of a train so as to avoid any load on the roller during such a passage. A mechanical stop can, furthermore, be provided to limit the deflection.

In the following, the invention will be explained in more detail by way of an exemplary embodiment schematically

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illustrated in the drawing. Therein, Fig. 1 is a perspective view of a rib plate with a subregion of a stock rail and a subregion of a tongue rail abutting on the stock rail on an appropriate slide chair with the roller device fixed to the rib plate; Fig. 2 is a side view in the sense of arrow II of Fig. 1; Fig. 3 is a top view on the rib plates with a superimposed roller device and removed rails; and Fig. 4 is a section along line IV-IV of Fig. 3.

Fig. 1 depicts a rib plate 1 carrying a slide chair 2, via which a tongue rail 3 can be moved to, or away from, a stock rail 5 in the sense of double arrow 4. The rib plate 1 carries a roller device or roller holder 8, which is connected with the rib plate 1 by the aid of a flange 9 and a screw 10. Fig. 1, moreover, illustrates the stop bar 11 of the flange 9, which blocks the pivotal movement of the flange, and hence the roller device, about the axis of the screw 10, which is schematically indicated at 12.

In the illustration according to Fig. 2, the reference numerals from Fig. 1 have been immediately retained, wherein a rib 13 is visible, which engages the foot 7 of the stock rail 5 from behind. From Fig. 2, it is further apparent that the upper edges of the rollers 14 are located higher than the sliding surface 15 of the slide chair in order to thereby eliminate the sliding friction, and reduce the switching force, in the region of the lifted tongue rail. The rib plate 1 is connected with the sleeper 18 via screws 6. From Fig. 2, a plug-on part or cover element 16 is finally apparent, which is plugged over the roller device 8 to thereby reduce the free space via which dust may enter.

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From the top view of Fig. 3, it is finally apparent that the flange 9 has an oblong hole 17 in which the screw 10 engages. The oblong hole, thus, allows for the adjustment of the rollers 14 in the sense of double arrow 4, which corresponds to the adjustment direction of the tongue rail, wherein the flange is again secured against pivoting about the axis of the screw 10 by the stop bar 11 connected with the flange.

From the sectional illustration according to Fig. 4, it is additionally apparent that the lower edges of the cheeks carrying the shafts 19 of the rollers 14 leave a recess 20, via which possibly intruded dust and dirt may escape in order not to impede the free rotation of the rollers 14. Optionally required fine tuning in the vertical direction can be achieved by working on the regions 21 and 22 of the cheeks adjacent the recess 20 such that a precise adjustment of the height position relative to the sliding surface of the slide chair 2, in which the upper edges of the rollers 14 are located above the sliding surface, is readily feasible.

## Claims:

1. A device for lifting a tongue rail of a switch during switching of the tongue rail, including a roller holder for rollers or rolls, which is arranged laterally outside a slide chair within the surface of a sleeper facing the rails, characterized in that the roller holder (8) is connected with a flange (9) carrying a stop bar (11) for fixation to the rib plate (1), and that the stop bar (11) laterally bears against an edge of the rib plate (1) in the position connected with the rib plate (1).
2. A device according to claim 1, characterized in that the roller holder (8) comprises two cheeks extending transversely to the longitudinal direction of the rail and intended for abutment on the rib plate (1) to accommodate the axes or shafts (19) of the rollers or rolls (14), which are connected with the flange.
3. A device according to claim 1, characterized in that the roller holder (8) is designed as an upwardly open frame or box resting on the rib plate (1).
4. A device according to claim 1, 2 or 3, characterized in that the cheeks have recesses on their lower edges facing the rib plate (1).
5. A device according to any one of claims 1 to 4, characterized in that the flange (9) has an oblong hole for receiving a locking bolt or a screw (10).
6. A device according to any one of claims 1 to 5, characterized in that the oblong hole is shorter than the

length of the stop bar (11), measured in the direction transverse to the longitudinal direction of the rail.

7. A device according to any one of claims 1 to 6, characterized in that a slip-on cover element (16) overlapping the cheeks, the frame or the box and including openings for the rollers or rolls (14) is provided.

8. A device according to any one of claims 1 to 7, characterized in that the rollers or rolls (14) are spring-mounted.

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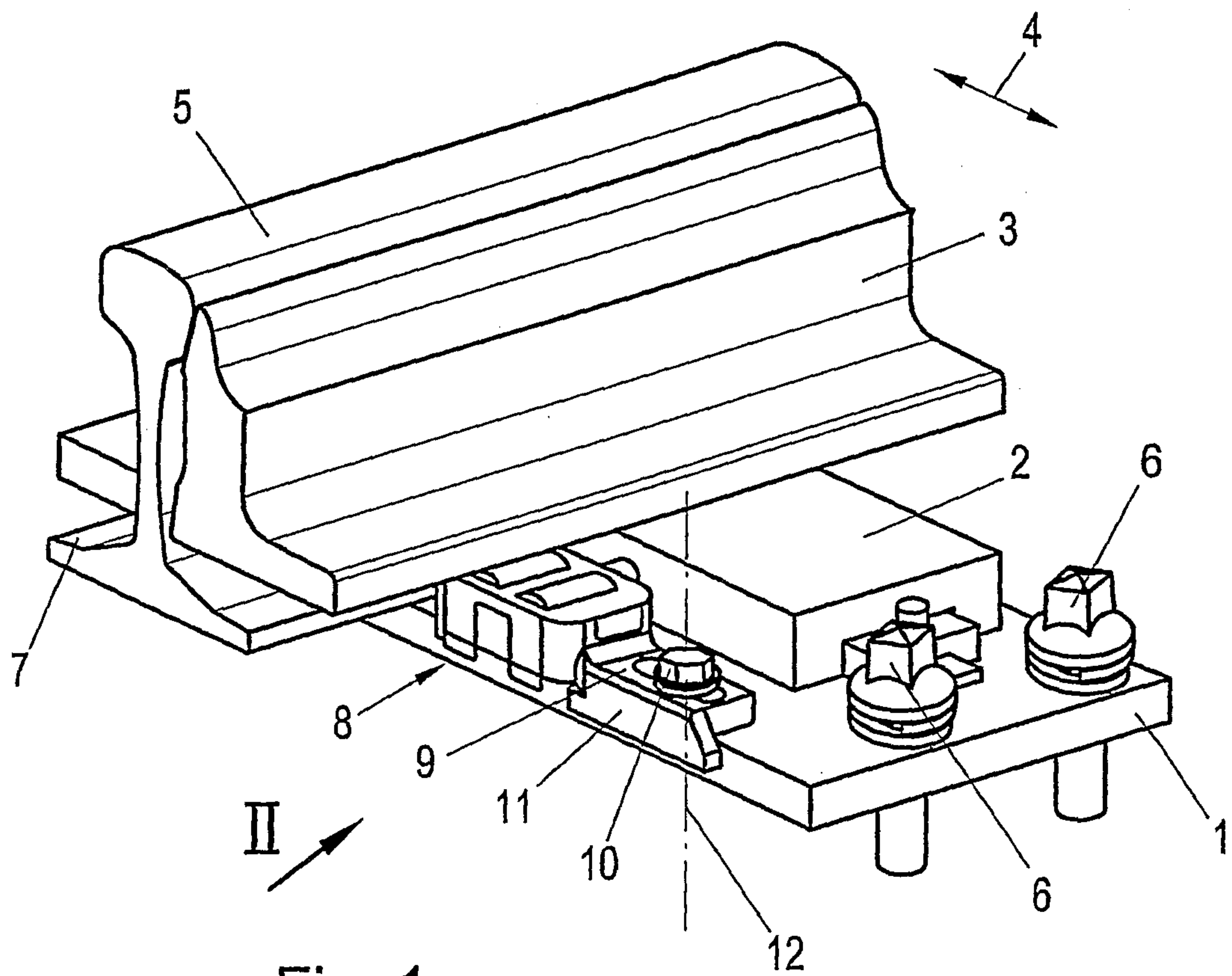


Fig. 1

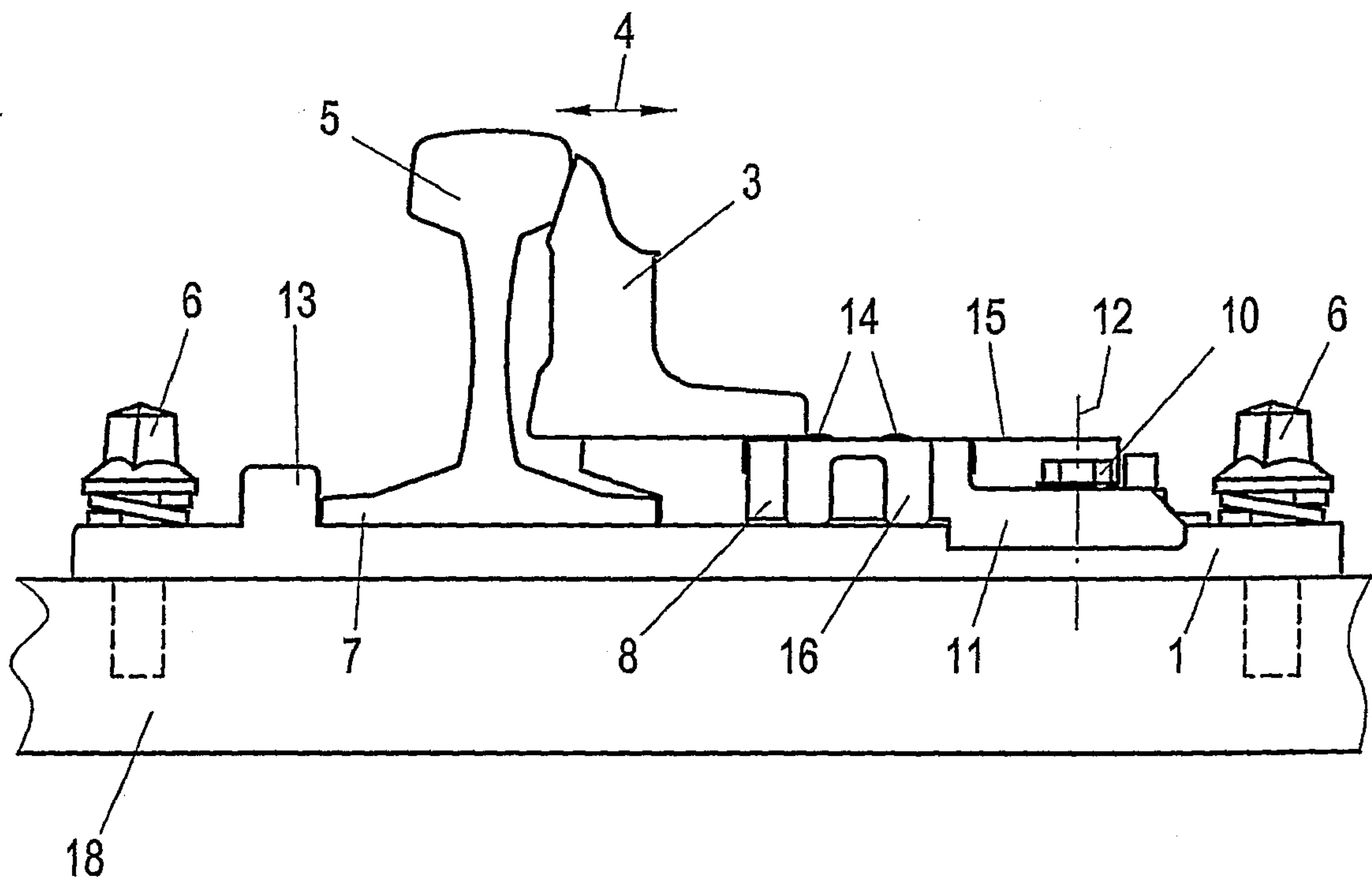


Fig. 2

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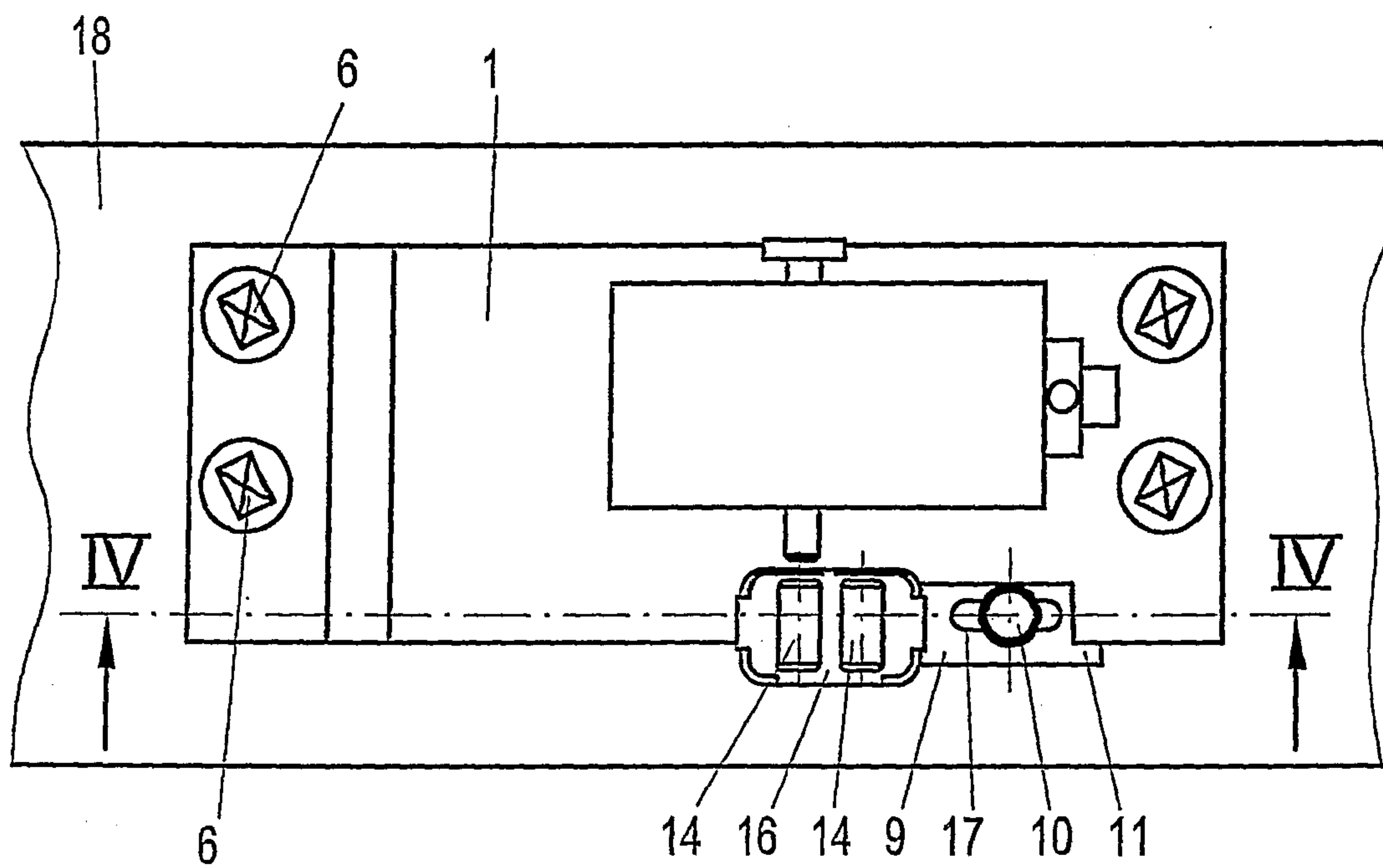


Fig. 3

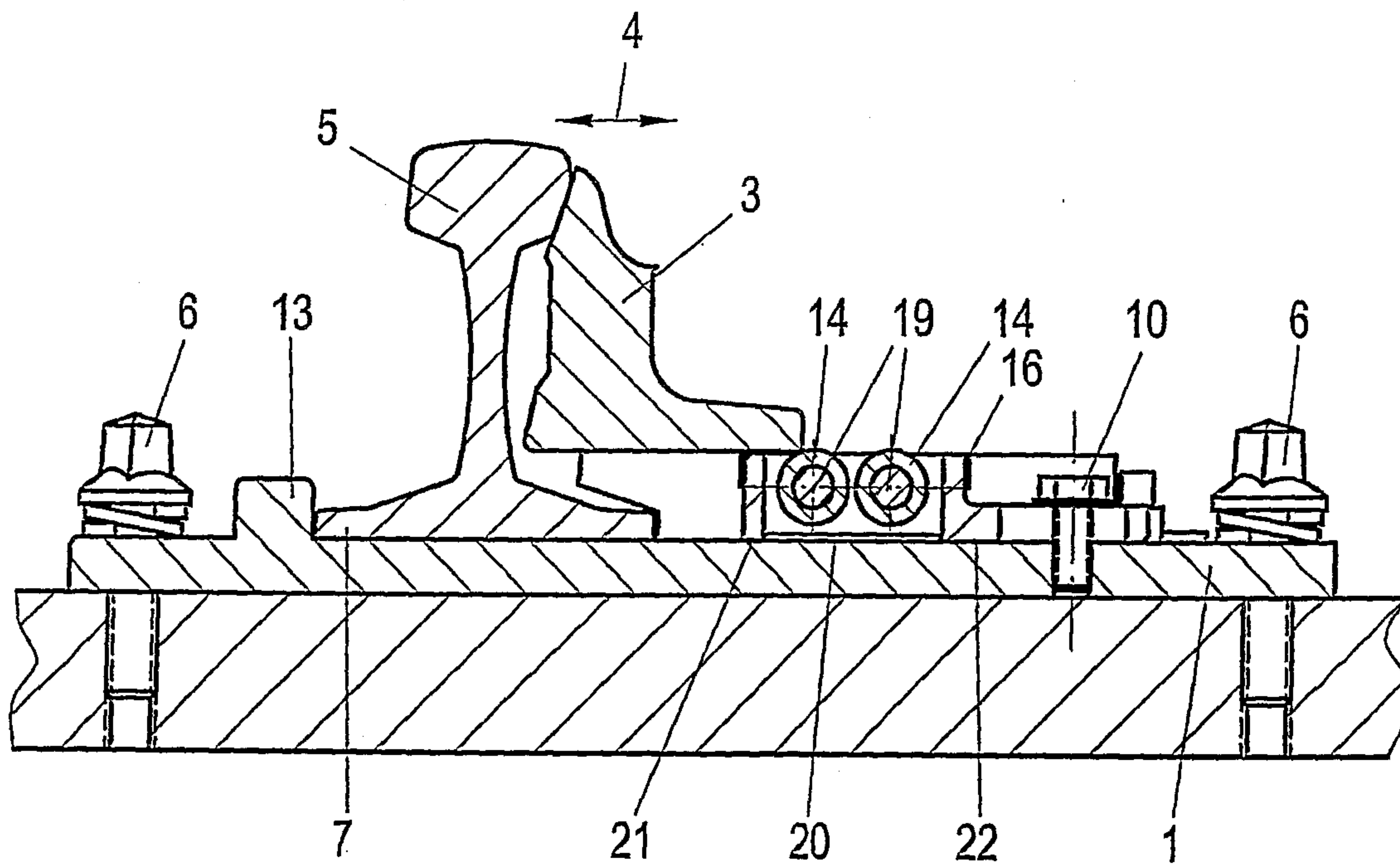


Fig. 4

